What is claimed is:

1. In an implantable medical device of the type that detects intrinsic depolarizations of a heart chamber, detects a tachycardia episode, and responds to the detected tachycardia of a heart chamber by delivering at least one anti-tachycardia pacing (ATP) regimen to the heart chamber, a method of delivering the ATP regimens further comprising:

(a) upon detection of a tachycardia episode, delivering an exploratory ATP sequence of pacing pulses to the heart chamber to elicit a paced depolarization of the heart chamber upon delivery of at least the last delivered ATP pulse;

(b) measuring an exploratory return cycle length (RCL) from the last delivered exploratory ATP sequence pacing pulse to the next detected intrinsic depolarization;

(c) formulating an ATP regimen having ATP parameters defined as a function of the measured exploratory RCL; and

(d) delivering the ATP regimen to the heart chamber.

2. The method of Claim 1, further comprising:

(e) following delivery of the ATP regimen, determining whether the tachycardia episode is terminated; and

(f) if the tachycardia episode is determined to be terminated in step (e), storing the delivered ATP regimen as a successful ATP regimen in association with the exploratory RCL measured in step (b) in IMD memory;

and wherein step (c) further comprises:

comparing the measured exploratory RCL determined in step (b) with any previously measured, stored exploratory RCLs stored in step (f); and

if the exploratory RCL measured in step (b) matches a stored exploratory RCL, retrieving the successful ATP regimen associated with the stored exploratory RCL from the IMD memory to be delivered in step (d).

3. The method of Claim 2, further comprising:

(g) if the tachycardia episode is determined to not be terminated in step (e), storing the delivered ATP regimen as an unsuccessful ATP regimen in association with the exploratory RCL measured in step (b) in IMD memory,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

4. The method of Claim 3, wherein:

step (a) further comprises determining the pre-ATP rate of the tachycardia prior to delivery of the exploratory regimen;

step (e) further comprises:

determining the post-ATP rate of the tachycardia following delivery of the ATP regimen; and

comparing the post-ATP rate to the pre-ATP rate to determine if the post-ATP rate is faster or slower than the pre-ATP rate; and

step (g) further comprises:

storing the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the exploratory RCL measured in step (b) in IMD memory, if the post-ATP rate is slower or substantially the same as the pre-ATP rate; and

storing the delivered ATP regimen as an unsuccessful, accelerating, ATP regimen in association with the exploratory RCL measured in step (b) in IMD memory, if the post-ATP rate is faster, by a predetermined amount, than the pre-ATP rate,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

5. The method of Claim 4, wherein step (c) further comprises:

comparing the measured exploratory RCL determined in step (b) with the stored exploratory RCLs stored in both step (f) and step (g); and

formulating the ATP parameters of the ATP regimen to be delivered as a baseline ATP therapy if the measured ATP parameter matches a stored exploratory RCL associated with an unsuccessful, accelerating, ATP regimen.

6. The method of Claim 5, wherein:

step (a) further comprises determining the pre-ATP rate of the tachycardia prior to delivery of the exploratory regimen;

step (e) further comprises:

measuring an ATP regimen RCL from the last delivered ATP regimen pacing pulse to the next detected intrinsic depolarization;

determining the post-ATP rate of the tachycardia following delivery of the ATP regimen; and

comparing the post-ATP rate to the pre-ATP rate to determine if the post-ATP rate is faster or slower than the pre-ATP rate; and

step (g) further comprises storing the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the exploratory RCL measured in step (b) and the ATP regimen RCL measured in step (e) in IMD memory, if the post-ATP rate is slower or substantially the same as the pre-ATP rate.

7. The method of Claim 6, wherein step (c) further comprises:

comparing the measured exploratory RCL determined in step (b) with the stored exploratory RCLs stored in both step (f) and step (g); and

if the measured exploratory RCL matches a stored exploratory RCL associated with an unsuccessful, non-accelerating, ATP regimen and an ATP regimen RCL, formulating the ATP parameters of the ATP regimen to be delivered as an iteration of the ATP parameters of the unsuccessful, non-accelerating, ATP regimen and the ATP regimen RCL.

8. The method of Claim 7, wherein the ATP parameters comprise the ATP cycle length and number of ATP pulses, and step (c) further comprises:

comparing the stored ATP regimen RCL and the measured exploratory RCL; and

adjusting at least one of the ATP cycle length and the number of ATP pulses as a function of the comparison of the ATP regimen RCL to the measured exploratory RCL.

9. The method of Claim 8, wherein the adjusting step comprises one of incrementing the number of ATP pulses or decrementing the ATP cycle length if the ATP regimen RCL exceeds the measured exploratory RCL by a predetermined amount.

10. The method of Claim 9, wherein the adjusting step comprises the other of incrementing the number of ATP pulses or decrementing the ATP cycle length if the ATP regimen RCL does not exceed the measured exploratory RCL by a predetermined amount.

11. The method of Claim 1, further comprising:

(e) following delivery of the ATP regimen, determining whether the tachycardia episode is terminated; and

(f) if the tachycardia episode is determined to be terminated in step (e):

classifying the delivered ATP regimen as successful;

incrementing an historical efficacy of the delivered ATP regimen; and

storing the delivered ATP regimen as a successful ATP regimen in association with the historical efficacy and the exploratory RCL measured in step (b) in IMD memory;

and wherein step (c) further comprises:

comparing the measured exploratory RCL determined in step (b) with previous exploratory RCLs stored in step (f);

if the exploratory RCL measured in step (b) matches at least one stored exploratory RCL, retrieving the successful ATP regimen associated with the stored exploratory RCL from the database to be delivered in step (d); and

if the exploratory RCL measured in step (b) matches more than one stored exploratory RCL, comparing the stored historical efficacies, and retrieving the successful ATP regimen having the highest stored historical efficacy associated with the stored exploratory RCL from the database to be delivered in step (d).

12. The method of Claim 11, further comprising:

(g) if the tachycardia episode is determined to not be terminated in step (e):

if the delivered ATP regimen comprises a previously stored successful ATP regimen, decrementing the historical efficacy of the stored successful ATP regimen; and

if the delivered ATP regimen does not comprise a previously stored successful ATP regimen, storing the delivered ATP regimen as an unsuccessful ATP regimen in association with the exploratory RCL measured in step (b) in IMD memory,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

13. In an implantable medical device, a method of responding to a tachycardia of a heart chamber by providing anti-tachycardia pacing (ATP) therapies to the heart chamber comprising:

(a) detecting intrinsic depolarizations of the heart chamber;

(b) detecting a tachycardia episode exhibited by a series of detected intrinsic depolarizations;

(c) delivering an exploratory ATP sequence of pacing pulses to the heart chamber to elicit a paced depolarization of the heart chamber upon delivery of at least the last delivered ATP pulse;

(d) measuring the return cycle length (RCL) between the last delivered exploratory ATP sequence pacing pulse and the next detected intrinsic depolarization as a measured exploratory RCL;

(e) formulating an ATP regimen having defined ATP parameters;

(f) delivering the ATP regimen formulated in step (e) to the heart chamber to elicit a paced depolarization of the heart chamber upon delivery of each ATP pulse;

(g) following delivery of the ATP regimen, determining whether the tachycardia episode is terminated;

(h) if the tachycardia episode is determined to be terminated in step (g), classifying the delivered ATP regimen as a successful ATP regimen in association with the exploratory RCL measured in step (g);

(i) storing the successful ATP regimen in association with the measured exploratory RCL in IMD memory; and

(j) processing steps (a) and (b) and repeating steps (c) - (i) when a tachycardia is detected in step (b) to accumulate a database comprising at least one stored successful ATP regimen and associated stored exploratory RCL,

wherein repeating step (e) comprises comparing the measured exploratory RCL determined each time step (d) is repeated with each stored exploratory RCL stored in step (i) and retrieving a successful ATP regimen from the database when the comparison results in a match.

14. The method of Claim 13, wherein:

step (h) further comprises, if the tachycardia episode is determined to not be terminated in step (g), decrementing an historical efficacy of the stored successful ATP regimen if the delivered ATP regimen comprises a previously stored successful ATP regimen; and

step (i) further comprises, if the delivered ATP regimen does not comprise a previously stored successful ATP regimen, storing the delivered ATP regimen as an unsuccessful ATP regimen in association with the exploratory RCL measured in step (d) in IMD memory,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

15. The method of Claim 13, wherein:

step (h) further comprises, if the tachycardia episode is determined to not be terminated in step (g):

decrementing an historical efficacy of the stored successful ATP regimen if the delivered ATP regimen comprises a previously stored successful ATP regimen;

determining if the rate of the tachycardia has accelerated;

if tachycardia rate acceleration is determined, classifying the delivered ATP regimen as an unsuccessful, accelerating, ATP regimen in association with the measured exploratory RCL determined in step (g); and

if tachycardia rate acceleration is not determined and if the delivered ATP regimen does not comprise a previously stored successful ATP regimen, classifying the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL determined in step (g); and

step (i) further comprises:

storing the unsuccessful, accelerating, ATP regimen in association with the measured exploratory RCL; and

storing the unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL in IMD memory if the delivered ATP regimen does not comprise a previously stored successful ATP regimen.

16. The method of Claim 15, wherein:

step (j) further comprises processing steps (a) and (b) and repeating steps (c) - (i) when a tachycardia is detected in step (b) to accumulate a database comprising successful and unsuccessful, accelerating and non-accelerating, ATP regimens and associated stored exploratory RCLs, and

step (e) further comprises comparing the exploratory RCL measured in step (d) with each stored RCL, and

retrieving the successful ATP regimen from the database if the RCL determined in step (d) matches an RCL associated with a successful ATP regimen stored in the database; and

retrieving the unsuccessful, non-accelerating ATP regimen from the database if the RCL determined in step (d) matches an RCL associated with an unsuccessful, non-accelerating, ATP regimen stored in the database.

17. The method of Claim 16 wherein step (e) further comprises:

if the exploratory RCL measured in step (d) matches at least one stored exploratory RCL associated with a successful ATP regimen, retrieving the successful ATP regimen associated with the stored exploratory RCL from the database to be delivered in step (f); and

if the exploratory RCL measured in step (d) matches more than one stored exploratory RCL associated with a successful ATP regimen, comparing the stored historical efficacies, and retrieving the successful ATP regimen having the highest stored historical efficacy associated with the stored exploratory RCL from the database to be delivered in step (f).

18. The method of Claim 15, wherein the ATP regimen comprises a predetermined number of ATP pulses separated by an ATP regimen cycle length and step (e) further comprises, if the measured ATP parameter matches a stored exploratory RCL associated with an unsuccessful, non-accelerating, ATP regimen, formulating the ATP parameters of the ATP regimen to be delivered as an iteration of the ATP parameters of the unsuccessful, non-accelerating, ATP regimen by one of incrementing the number of ATP pulses or decrementing the ATP cycle length by a predetermined amount.

19. An implantable medical device of the type that detects intrinsic depolarizations of a heart chamber, detects a tachycardia episode and responds to the detected tachycardia of a heart chamber by delivering anti-tachycardia pacing (ATP) therapies to the heart chamber further comprising:

means operable upon detection of a tachycardia for delivering an exploratory ATP sequence of pacing pulses to the heart chamber to elicit a paced depolarization of the heart chamber upon delivery of at least the last delivered ATP pulse;

means for measuring the return cycle length (RCL) between the last delivered exploratory ATP sequence pacing pulse and the next detected intrinsic depolarization as a measured exploratory RCL;

formulating means for formulating an ATP regimen having defined ATP parameters as a function of the measured exploratory RCL; and

means for delivering the ATP regimen.

20. The implantable medical device of Claim 19, further comprising:

means for determining whether the tachycardia episode is terminated following delivery of the ATP regimen;

classifying means for classifying the delivered ATP regimen as a successful ATP regimen in association with the measured exploratory RCL if the tachycardia episode is determined to be terminated; and

storing means for storing the successful ATP regimen in association with the measured exploratory RCL in IMD memory; and wherein:

the formulating means further comprises means for comparing the measured exploratory RCL with each stored RCL and for retrieving a successful ATP regimen from the database when the measured exploratory RCL matches a stored RCL associated with the successful ATP regimen stored in the database.

21. The implantable medical device of Claim 20, wherein:

the classifying means is operable for classifying the delivered ATP regimen as an unsuccessful ATP regimen in association with the measured exploratory RCL if the tachycardia episode is determined to not be terminated; and

the storing means is operable for storing the unsuccessful ATP regimen in association with the measured exploratory RCL in IMD memory,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens associated with stored exploratory RCLs.

22. The implantable medical device of Claim 21, further comprising:

means operable upon detection of a tachycardia for determining the pre-ATP rate of the tachycardia prior to delivery of the exploratory regimen; and

means operable if the tachycardia episode is determined to not be terminated for determining the post-ATP rate of the tachycardia following delivery of the ATP regimen; and wherein:

the classifying means is operable for classifying the delivered ATP regimen as an unsuccessful, accelerating, ATP regimen in association with the determined RCL if the post-ATP rate is faster than the pre-ATP rate and for classifying the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the determined RCL if the pre-ATP rate is faster or the same as the post-ATP rate; and

the storing means is operable for storing the unsuccessful, accelerating, ATP regimen in association with the measured exploratory RCL or the unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL in IMD memory.

23. The implantable medical device of Claim 21, further comprising:

means for determining and storing an historical efficacy of each classified successful ATP regimen associated with a stored exploratory RCL, the efficacy ranking representing the ratio of the number of successful terminations of a tachycardia by the ATP regimen to the number of unsuccessful, non-accelerating, terminations by the same ATP regimen; and wherein:

the formulating means further comprises means for selecting a successful ATP regimen having the highest historical efficacy among stored successful ATP regimens that are associated with the same stored exploratory RCL that matches the measured exploratory RCL.

24. The implantable medical device of Claim 19, further comprising:

termination determining means determining whether the tachycardia episode is terminated by delivery of the ATP regimen; and

means operable if the tachycardia episode is determined to be terminated for storing the delivered ATP regimen as a successful ATP regimen in association with the measured exploratory RCL in IMD memory;

and wherein the formulating means further comprises:

means for comparing the measured exploratory RCL with any previously measured, stored exploratory RCLs stored in IMD memory; and

means for retrieving the successful ATP regimen associated with the stored exploratory RCL from the database if the exploratory RCL matches the stored exploratory RCL.

25. The implantable medical device of Claim 24, further comprising:

storing means for storing the delivered ATP regimen as an unsuccessful ATP regimen in association with the measured exploratory RCL in IMD memory if the tachycardia episode is determined to not be terminated by the termination determining means;

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

26. The implantable medical device of Claim 25, further comprising:

tachycardia rate determining means for determining the pre-ATP rate of the tachycardia prior to delivery of the exploratory regimen and the post-ATP rate of the tachycardia following delivery of the ATP regimen;

and wherein the storing means is operable to store the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL in IMD memory, if the post-ATP rate is slower or substantially the same as the pre-ATP rate and is operable to store the delivered ATP regimen as an unsuccessful, accelerating, ATP regimen in association with the

measured exploratory RCL in IMD memory, if the post-ATP rate is faster, by a predetermined amount, than the pre-ATP rate,

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

27. The implantable medical device of Claim 26, wherein the formulating means further comprises:

means for comparing the measured exploratory RCL with the stored exploratory RCLs stored in IMD memory; and

means for formulating the ATP parameters of the ATP regimen to be delivered as a baseline ATP therapy if the measured ATP parameter matches a stored exploratory RCL associated with an unsuccessful, accelerating, ATP regimen.

28. The implantable medical device of Claim 25, further comprising:

means for measuring an ATP regimen RCL from the last delivered ATP regimen pacing pulse to the next detected intrinsic depolarization;

tachycardia rate determining means for determining the pre-ATP rate of the tachycardia prior to delivery of the exploratory regimen and the post-ATP rate of the tachycardia following delivery of the ATP regimen;

and wherein the storing means is operable to store the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL and the ATP regimen RCL in IMD memory, if the post-ATP rate is slower or substantially the same as the pre-ATP rate.

29. The implantable medical device of Claim 28, wherein the formulating means further comprises means operable if the measured ATP parameter matches a stored exploratory RCL associated with an unsuccessful, non-accelerating, ATP regimen for formulating the ATP parameters of the ATP regimen to be delivered as an iteration of the ATP parameters of the unsuccessful, non-accelerating, ATP regimen and its associated ATP regimen RCL.

30. The implantable medical device of Claim 29, wherein the ATP parameters comprise the ATP cycle length and number of ATP pulses, and the formulating means further comprises means for adjusting at least one of the ATP cycle length and the number of ATP pulses as a function of the comparison of the ATP regimen RCL to the measured exploratory RCL.

31. The implantable medical device of Claim 30, wherein the adjusting comprises one of incrementing the number of ATP pulses or decrementing the ATP cycle length if the ATP regimen RCL exceeds the measured exploratory RCL by a predetermined amount.

32. The implantable medical device of Claim 31, wherein the adjusting comprises the other of incrementing the number of ATP pulses or decrementing the ATP cycle length if the ATP regimen RCL does not exceed the measured exploratory RCL by a predetermined amount.

33. The implantable medical device of Claim 19, further comprising:

means for determining whether the tachycardia episode is terminated following delivery of the ATP regimen; and

means operable if the tachycardia episode is determined to be terminated for classifying the delivered ATP regimen as successful for incrementing an historical efficacy of the delivered ATP regimen, and storing the delivered ATP regimen as a successful ATP regimen in association with the historical efficacy and the measured exploratory RCL in IMD memory;

and wherein the formulating means further comprises:

means for comparing the measured exploratory RCL with stored exploratory RCLs;

means operable if the measured exploratory RCL matches at least one stored exploratory RCL for retrieving the successful ATP regimen associated with the stored exploratory RCL from the database to be delivered; and

means operable if the exploratory RCL measured matches more than one stored exploratory RCL for comparing the stored historical efficacies and for retrieving the successful ATP regimen having the highest stored historical efficacy associated with the stored exploratory RCL from the database to be delivered.

34. The implantable medical device of Claim 33, further comprising:

means for decrementing the historical efficacy of the stored successful ATP regimen if the delivered ATP regimen comprises a previously stored successful ATP regimen and has not terminated the tachycardia episode; and

means for storing the delivered ATP regimen as an unsuccessful ATP regimen in association with the measured exploratory RCL in IMD memory, if the delivered ATP regimen does not comprise a previously stored successful ATP regimen.

whereby a database is accumulated in IMD memory comprising successful and unsuccessful ATP regimens each associated with a stored exploratory RCL.

35. In an implantable medical device, apparatus that responds to a tachycardia of a heart chamber by providing anti-tachycardia pacing (ATP) therapies to the heart chamber comprising:

detecting means for detecting intrinsic depolarizations of the heart chamber;

tachycardia detecting means for detecting a tachycardia episode exhibited by a series of detected intrinsic depolarizations;

pacing pulse delivery means for delivering pacing pulses to the heart chamber;

means for operating the pacing pulse delivery means to deliver an exploratory ATP sequence of pacing pulses to the heart chamber to elicit a paced depolarization of the heart chamber upon delivery of at least the last delivered ATP pulse;

return cycle length (RCL) determining means for measuring an exploratory RCL between the last delivered exploratory ATP sequence pacing pulse and the next detected intrinsic depolarization;

ATP regimen formulating means for formulating an ATP regimen having defined ATP parameters;

means for operating the pacing pulse delivery means to deliver the formulated ATP regimen of ATP pulses to the heart chamber;

termination determining means for determining whether the tachycardia episode is terminated or not terminated following delivery of the ATP regimen;

classifying means for classifying the delivered ATP regimen as a successful ATP regimen in association with the measured exploratory RCL determined if the tachycardia episode is determined to be terminated; and

storing means for storing the successful ATP regimen in association with the measured exploratory RCL in IMD memory, and

wherein the ATP regimen formulating means comprises means for comparing each subsequently the measured exploratory RCL with each stored RCL stored in IMD memory association with a successful ATP regimen, and means for retrieving a successful ATP regimen if the measured exploratory RCL matches the RCL associated with the successful ATP regimen stored in the database.

36. The implantable medical device of Claim 35, wherein:

the classifying means further comprises means for classifying the delivered ATP regimen as an unsuccessful ATP regimen in association with the measured exploratory RCL if the tachycardia episode is determined to not be terminated; and

the storing means further comprises means for storing the unsuccessful ATP regimen in association with the measured exploratory RCL in IMD memory.

37. The implantable medical device of Claim 36, wherein the classifying means further comprises:

tachycardia acceleration determining means for determining if the rate of the tachycardia has accelerated if the tachycardia episode is determined to not be terminated,

means for classifying the delivered ATP regimen as an unsuccessful, accelerating, ATP regimen in association with the measured exploratory RCL if acceleration is determined; and

means for classifying the delivered ATP regimen as an unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL if acceleration is not determined.

38. The implantable medical device of Claim 37, wherein the storing means further comprises means for storing the unsuccessful, accelerating, ATP regimen in association with the measured exploratory RCL or the unsuccessful, non-accelerating, ATP regimen in association with the measured exploratory RCL in IMD memory.